

CLAIMS

What we claim is:

- 5 1. A multiple fiber material comprising different ends of yarn with one end being made from standard carpet denier yarns ranging from about 10 to 30 denier per filament and total denier ranging from about 600 to 5000 denier and a second end being made from heavy monofilament fibers with a denier per filament ranging from about 100 to 500 denier and a total denier ranging from about 300 to 5000 denier per yarn bundle.
- 10 2. The multiple fiber material as recited in claim 1, wherein said fibers are made from at least one of synthetic and natural materials.
- 15 3. The multiple fiber material as recited in claim 1, wherein said fibers are made from synthetic materials such as at least one of nylon, polyester, and polypropylene.
4. The multiple fiber material as recited in claim 1, wherein the fibers are made from natural materials such as at least one of cotton, cotton blend, and wool.
- 20 5. The multiple fiber material as recited in claim 1, wherein the material serves as a jet dyeable dual fiber fabric.
6. The multiple fiber material as recited in claim 5, wherein the dual fibers are a carpet yarn and a monofilament yarn.

7. The multiple fiber material as recited in claim 1, wherein the material provides for a method of dyeing a fabric base that contains monofilament.
- 5 8. The multiple fiber material as recited in claim 1, wherein the material provides for a method of exposing monofilament to dye for a sufficient time for the monofilament to capture the dye in its dye sites.
9. The multiple fiber material as recited in claim 1, wherein the material is jet dyed by at least one of direct jet, airjet, bubble jet, and ink jet.
10. The multiple fiber material as recited in claim 1, wherein the material is air entangled and is at least one of woven, needle punch, tufted, and bonded.
11. A multiple fiber material comprising a nonwoven material which contains a carpet yarn and a monofilament yarn.
12. A method for providing a system for the removal of moisture, dirt, and debris from pedestrians' footwear at and around a building entryway, said method comprising the placement of a barrier combination of floor covering articles wherein said combination comprises at least three separate floor or ground covering articles A, B, and C;

wherein A is placed inside said building entryway, C is placed outside said building entryway, and B is either placed inside said building entryway, at a location closer to said building entryway than A, or outside said building entryway, at a location closer to said building entryway than C;

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wherein C is a ground covering mat product comprised of completely tufted carpet pile of tufted ends of yarn with one end being made from standard carpet denier yarns ranging from about 10 to 30 denier per filament and total denier ranging from about 600 to 5000 denier and the second end being made from heavy monofilament fibers with a denier per filament ranging from about 100 to 500 denier and a total denier ranging from about 300 to 5000 denier per yarn bundle and a backing selected from the group consisting of vinyl, rubber, and latex;

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wherein B is a floor or ground covering mat product comprised of completely tufted carpet pile having a lower percentage of heavy denier monofilament carpet yarn than C and a backing selected from the group consisting of vinyl, rubber, and latex; and

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wherein A is a floor covering mat, broadloom, or tile product comprised of completely tufted carpet pile having a lower percentage of heavy denier monofilament yarn than B and a backing selected from the group consisting of rubber, polyvinyl chloride, vinyl, and urethane.

13. The method of Claim 12 wherein

B comprises from about 30 to about 60 heavy denier coarse monofilament carpet yarn and from about 40 to about 70% fine denier carpet yarn; and

A comprises from about 10 to about 20% heavy denier coarse monofilament carpet yarn and from about 80 to about 90% fine denier carpet yarn.

14. The method of Claim 12 wherein A is a mat product having a backing selected from the group consisting of vinyl and rubber.
15. The method of Claim 12 wherein A is a broadloom product having a backing selected from the group consisting of polyvinyl chloride, vinyl, and urethane.
16. The method of Claim 12 wherein A is a tile product having a backing selected from the group consisting of polyvinyl chloride, vinyl, and urethane.
17. The method of Claim 12 wherein B is located inside said building entryway.
18. The method of Claim 12 wherein B is located outside said building entryway.
19. The method of Claim 12 wherein A is a mat product having a backing material of rubber.
20. The method of Claim 12 wherein A is a broadloom product having a backing material of urethane.

21. The method of Claim 12 wherein A is a tile product having a backing material of urethane.

5 22. The method of Claim 12 wherein the heavy denier coarse monofilament carpet yarns are made of polypropylene having a denier range of from about 100 to about 500 dpf.

23. A method for providing a system for the removal of moisture, dirt, and debris from pedestrians' footwear at and around a building entryway having an airlock-type vestibule configuration, said method comprising the placement of a barrier combination of floor covering articles wherein said combination comprises at least three separate floor or ground covering articles A, B, and C;

wherein A is placed inside said building entryway and is not placed within said airlock-type vestibule, B is placed within said airlock-type vestibule, and C is placed outside said building entryway;

wherein C is a ground covering mat product comprised of completely tufted carpet pile of tufted ends of yarn with one end being made from standard carpet denier yarns ranging from about 10 to 30 denier per filament and total denier ranging from about 600 to 5000 denier and the second end being made from heavy monofilament fibers with a denier per filament ranging from about 100 to 500 denier and a total denier ranging from about 300 to 5000 denier per yarn bundle and a backing selected from the group consisting of vinyl, rubber, and latex;

wherein B is a floor or ground covering mat product comprised of completely tufted carpet pile having a lower degree of heavy denier monofilament carpet yarn than C and a backing selected from the group consisting of vinyl, rubber, and latex; and

5 wherein A is a floor covering mat, broadloom, or tile product comprised of completely tufted carpet pile having a lower degree of heavy denier monofilament yarn than B and a backing selected from the group consisting of rubber, polyvinyl chloride, vinyl, and urethane.

10 24. The method of Claim 23 wherein

B comprises from about 30 to about 60 heavy denier coarse monofilament carpet yarn and from about 40 to about 70% fine denier carpet yarn; and

15 A comprises from about 10 to about 20% heavy denier coarse monofilament carpet yarn and from about 80 to about 90% fine denier carpet yarn.

25. The method of Claim 23 wherein A is a mat product having a backing selected from the group consisting of vinyl and rubber.

20 26. The method of Claim 23 wherein A is a broadloom product having a backing selected from the group consisting of polyvinyl chloride, vinyl, and urethane.

27. The method of Claim 23 wherein A is a tile product having a backing selected from the group consisting of polyvinyl chloride, vinyl, and urethane.

28. The method of Claim 23 wherein A is a mat product having a backing material of rubber.

5 29. The method of Claim 23 wherein A is a broadloom product having a backing material of urethane.

30. The method of Claim 23 wherein A is a tile product having a backing material of urethane.

10 31. The method of Claim 23 wherein the heavy denier coarse monofilament carpet yarns are made of polypropylene having a denier range of from about 100 to about 200 dpf.

15 32. A multiple fiber dyeable material comprising tufted ends of yarn with one end being made from standard carpet denier yarns ranging from about 10 to 30 denier per filament and total denier ranging from about 600 to 5000 denier and the second end being made from heavy monofilament fibers with a denier per filament ranging from about 100 to 500 denier and a total denier ranging from about 300 to 5000 denier per yarn bundle.

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33. A dual fiber base comprising two different ends of yarn, the first end is made from 9 ends of 300 denier type 6 nylon monofilament fiber airjet textured together, these textured monofilament ends are air entangled with one end of type 6,6 nylon 1230 denier 18 dpf carpet yarn, the second end is made from three ends of air entangled

type 6,6 nylon 1230 denier 18 dpf, the base is then tufted using the two yarns, the yarns are tufted in straight rows on a 5/32 gauge cut pile tufter, the base is made by alternating one end of the air entangled monofilament end and three ends of the air entangled 1230 denier yarn across the total width of the fabric, the base can be dyed on an injection dye machine.

34. A dual fiber base comprising two different ends of yarn, the first end is made from 9 ends of 500 denier type 6 nylon monofilament fiber that is airjet textured together, these textured monofilament ends are air entangled with one end of type 6,6 nylon 1230 denier 30 dpf carpet yarn, the second end is made from three ends of air entangled type 6,6 nylon 1230 denier 30 dpf, the base is then tufted using the two yarns, the yarns are tufted in straight rows on a 5/32 gauge cut pile tufter, the base is made by alternating one end of the air entangled monofilament end and three ends of the entangled 1230 denier yarn across the total width of the fabric, the base can be dyed in an injection dye machine.

35. A dual fiber base comprising two different ends of yarn, the first end is made from 14 ends of 20 denier type 6 nylon monofilament fiber that has been airjet textured together, the textured monofilament ends are air entangled with one end of 4/1 cc cotton yarn, the second end is made from three ends of 4/1 cc cotton yarn air entangled together, the yarns are tufted in straight rows on a 1/8 gauge cut pile tufter, the base is made by alternating one end of the air entangled monofilament end and three ends of the air entangled 4/1 cotton yarn across the total width of the fabric, the base can be dyed on an injection dye machine.

36. A dual fiber base comprising two different ends of yarn, the first end is made from 9 ends of a non-sulfonated solution dyed 300 denier monofilament (nylon 6 or nylon 6,6) that has been airjet textured together, these textured monofilament ends are air entangled with one end of 1381 denier non-sulfonated solution dyed yarn 23 dpf, the second end is made from three ends of 1381 denier non-sulfonated solution dyed yarn 23 dpf (nylon 6 or nylon 6,6), air entangled together, the yarns are tufted in straight rows on a 5/32 gauge cut pile tufter, the base is made by alternating one end of the air entangled monofilament end and three ends of the air entangled 1381 denier solution dyed end across the total width of the fabric.

37. A method of constructing a dual fiber mat material in such a manner that allows dyeing with the use of injection dye technology, the fibers are constructed in such a way that the dual fiber properties remain and, at the same time, allow the monofilament fibers to absorb and adequately fill the open dye sites for complete coloration of the fiber, hence the dyeing of the monofilament fibers in the dual fiber fabric using injection dyeing technology is made possible, comprising the steps of texturing together monofilament fibers, which range from about 100 to 500 denier per filament, through the use of either air jet or mechanical texturing processes, the number of monofilament ends that are textured together can be comprised of from about 2 to 30 filaments, after the texturing process is complete, air entangling the monofilament end with one end of conventional carpet yarn which can range from about 10 to 30 denier per filament and a total denier of about 600 to 5000 per yarn bundle, the entangling of the standard carpet yarn with the monofilament ends allows the dye fired from the jets, to be held on the surface of the monofilament fibers long

enough for adequate dye penetration, surface tensions are improved to the point that very intricate and detailed patterns are possible with no shaded dyeing and with high pattern clarity, also the dual fiber mat material allows for precise and complex dyeing that yields high pattern clarity and deep dye penetration using injection dyeing technology.

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38. A dual fiber mat material made by the process of claim 37.
39. A mat containing the dual fiber mat material made by the process of claim 37.
40. A dyed mat containing the dual fiber mat material made by the process of claim 37.

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